AD-A107 415 ARMY ELECTRONICS RESEARCH AND DEVELOPMENT COMMAND WS--ETC F/G 4/2
19304D MLRS, MISSILE NUMBER V38-002, ROUND NUMBER V-183/IW-2, 1--ETC(U)
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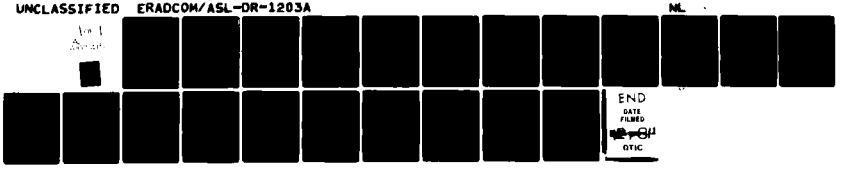

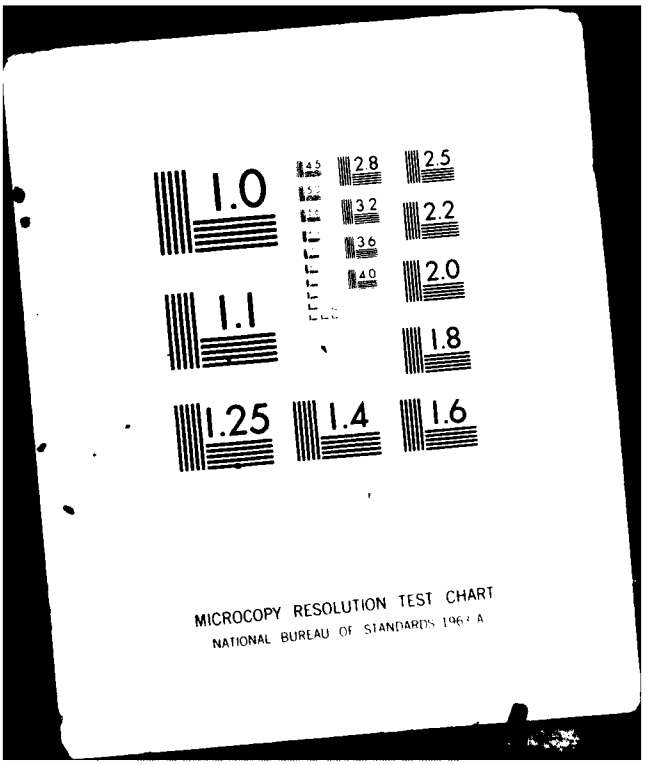
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METEOROLOGICAL DATA REPORT

19304D MLRS
Missile Number V-38-002
Round Number V-183/IW-2
13 Aug 1981

by

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ATMOSPHERIC SCIENCES LABORATORY
WHITE SANDS MISSILE RANGE, NEW MEXICO

ECOM
UNITED STATES ARMY ELECTRONICS COMMAND

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CONTENTS

INTRODUCTION

19304D MLRS, Missile Number V-38-002, Round Number V-183/IW-2, was launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 0900 MDT, 13 Aug 1981. The scheduled launch time was 0900 MDT.

DISCUSSION

Meteorological data were recorded and reduced by the White Sands Meteorological Team, Atmospheric Sciences Laboratory (ASL), White Sands Missile Range, New Mexico. The data were obtained by the following methods:

1. Observations.

a. Surface:

(1) Standard surface observations to include pressure, temperature (^{o}C), relative humidity, dew point (^{o}C), density (gm/m^3), wind speed and direction, and cloud cover were made at the LC-33 Met Site at T-0 minutes.

(2) Anemometer data were provided from existing pole-mounted and tower-mounted anemometers at LC-33. Monitor of wind speed and direction from one anemometer was also provided in the launch control room.

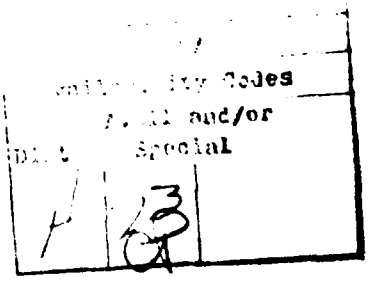
b. *Upper Air:*

(1) Low level wind data were obtained from Pilot-Balloon observations at:

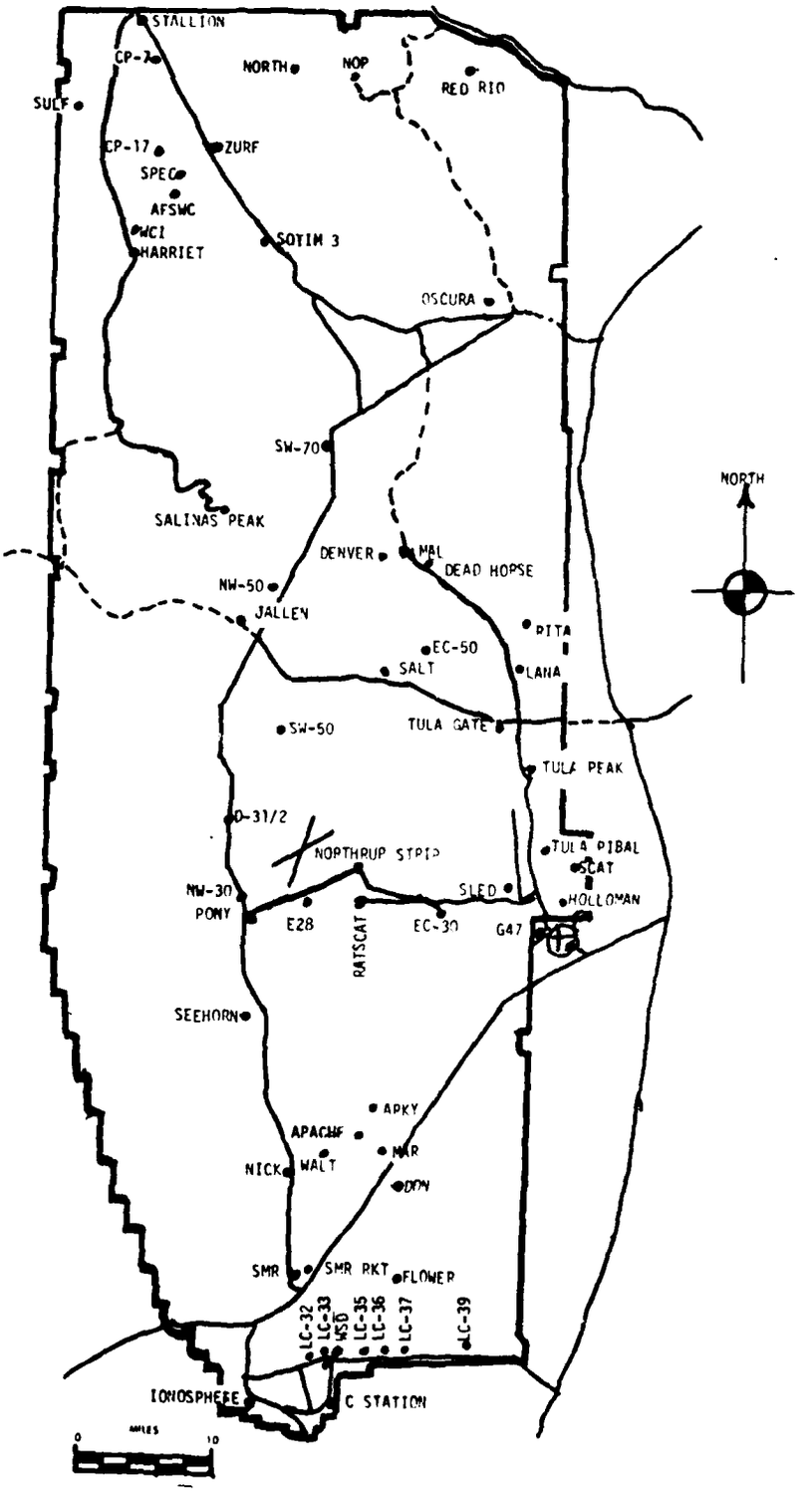
SITE AND ALTITUDE	
LC-33	1550 Meters
NICK	2000 Meters

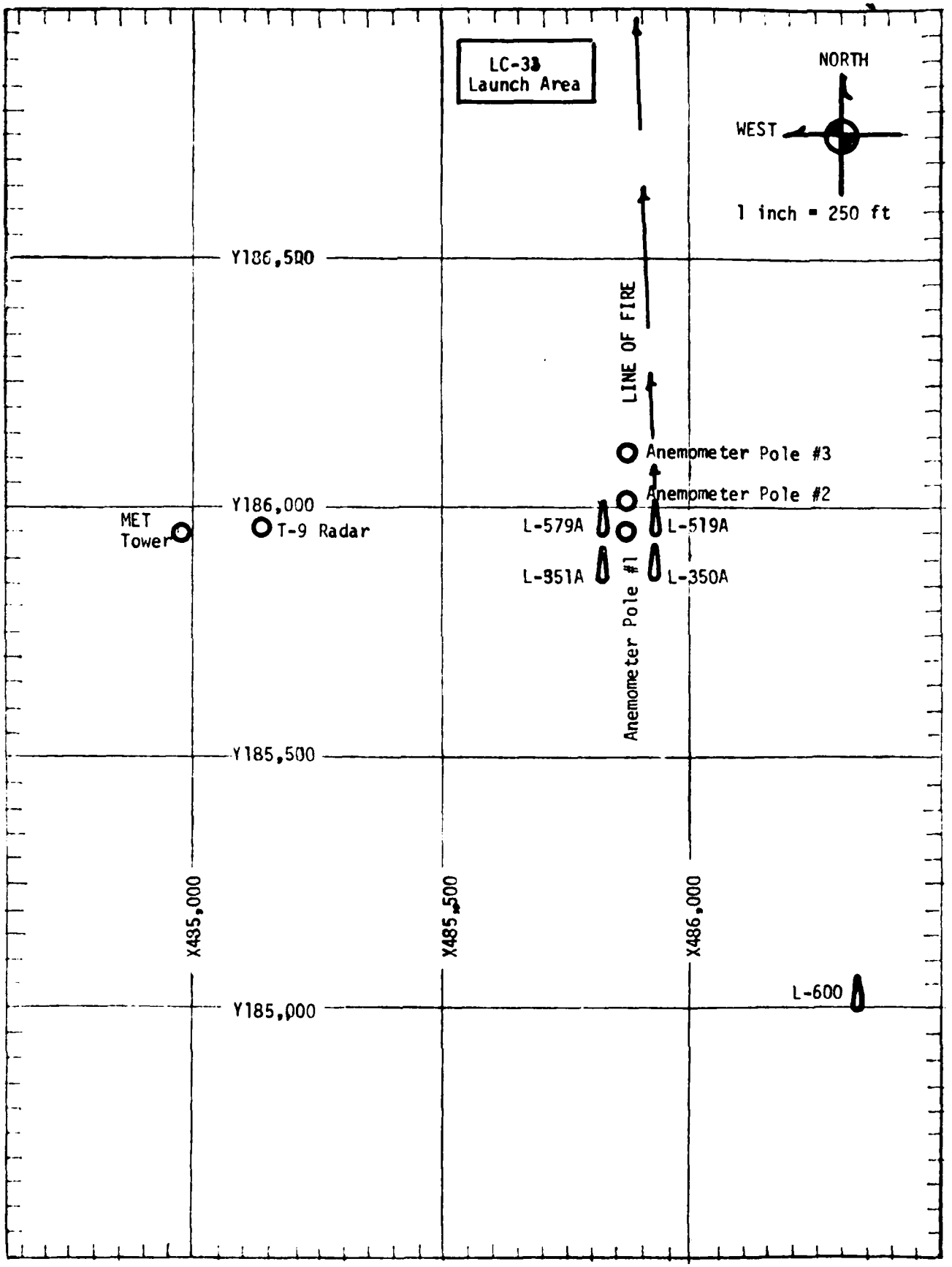
(2) Air structure data (rawinsonde) were collected at the following Met Sites:

SITE AND TIME	
WSD	0600 MDT
WSD	0737 MDT
WSD	0900 MDT



WSMR METEOROLOGICAL SITES




LC-3B
Launch Area
NORTH
WEST
1 inch = 250 ft
Y186,500
LINE OF FIRE
Anemometer Pole #3
Anemometer Pole #2
Y186,000
MET
Tower
T-9 Radar
L-579A
L-519A
L-351A
L-350A
Anemometer Pole #1
Y185,500
X485,500
X486,000
L-600
Y185,000

PROJECT SURFACE OBSERVATION

TABLE 1 STATION LC-33

DATE 13 (DAY) AUG (MONTH) 1981 (YEAR) X= 485,135.76 Y= 185,919.24 H= 3988.57

TIME M D T	PRESSURE mbs	TEMPERATURE °F	TEMPERATURE °C	DEW POINT °F	DEW POINT °C	RELATIVE HUMIDITY %	DENSITY gm/m³	WIND DIRECTION degs Tn	WIND SPEED kts	WIND CHARACTER kts	VISIBILITY
0900	882.2		20.1		16.7	81	1048	350	04		20

OBSTRUCTIONS TO VISIBILITY	CLOUDS 1st LAYER AMT	1st LAYER TYPE	1st LAYER HGT	2nd LAYER AMT	2nd LAYER TYPE	2nd LAYER HGT	3rd LAYER AMT	3rd LAYER TYPE	3rd LAYER HGT	REMARKS
	3	AC	12,000	7	THIN CS	25,000				

PSYCHROMETRIC COMPUTATION

TIME: MDT	0900		
DRY BULB TEMP.	20.1		
WET BULB TEMP.	17.8		
WET BULB DEPR.	2.3		
DEW POINT	16.7		
RELATIVE HUMID.	81%		

TABLE 2 LC-33 FIXED POLE ANEMOMETER MEASURED WINDS

POLE #1 X485,874.29 Y185,958.90 H4018.74 38.7 ft. AGL			POLE #2 X485,874.93 Y186,012.00 H4033.57 53.0 ft. AGL			POLE #3 X485,877.29 Y186,116.06 H4063.92 83.6 ft. AGL		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T -30	017	05	T -30	352	04	T -30	001	07
T -20	017	05	T -20	354	04	T -20	001	07
T -10	017	05	T -10	353	04	T -10	002	07
T 0.0	016	06	T 0.0	353	05	T 0.0	002	06
T +10	016	06	T +10	356	05	T +10	003	06

TABLE 3 LC-33 METEOROLOGICAL TOWER ANEMOMETER MEASURED WINDS (202 FT TOWER)

LEVEL #1, 12 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #2, 62 FEET X484.982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T -30	354	03	T -30	346	05
T -20	011	04	T -20	347	06
T -10	343	03	T -10	346	05
T 0.0	347	04	T 0.0	348	05
T +10	353	06	T +10	346	05

LEVEL #3, 102 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #4, 202 FEET X484,982, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T -30	345	05	T -30	018	06
T -20	344	05	T -20	019	06
T -10	345	05	T -10	018	06
T 0.0	345	05	T 0.0	017	06
T +10	347	04	T +10	017	06

TABLE 4

T-TIME PILOT-BALLOON MEASURED WIND DATA

DATE 13 Aug 1981

SITE: LC-33
TIME: 0900 MDT
WSTM COORDINATES:
X= 484,837.34
Y= 184,124.44
H= 3,975.57

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	350	04
150	356	05
210	358	06
270	353	05
330	345	04
390	332	02
500	199	02
650	164	06
800	157	09
950	161	10
1150	192	09
1350	195	08
1550	200	06
1750	M I S G	
2000	M I S G	

Data obtained from Double Theodolite Tracked Pilot-Balloon Observations.

SITE: NICK
TIME: 0900 MDT
WSTM COORDINATES:
X= 470,734.56
Y= 255,775.64
H= 4,126.57

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	350	02
150	350	05
210	349	04
270	340	02
330	225	01
390	184	03
500	175	07
650	172	09
800	172	10
950	184	08
1150	220	07
1350	235	08
1550	237	08
1750	217	06
2000	192	05

Data obtained from Single Theodolite Tracked Pilot-Balloon Observations.

TABLE 5

AIMING AND T-TIME COMPUTER MET MESSAGES
13 Aug 1981

WSD 0600 MDT		WSD 0737 MDT		WSD 0900 MDT	
METCM1324064		METCM1324064		METCM1324064	
131200122880		131360122881		131500122882	
00027004	29360880	00027004	29500881	00631004	29700882
01640004	29420870	01006007	29430871	01626004	29510872
02209005	29460845	02229003	29490846	02220001	29430847
03304006	29250807	03296007	29320808	03313006	29320808
04330010	28980761	04385007	29080762	04344006	28980762
05412005	28570717	05397004	28650718	05347004	28570719
06409005	28140675	06387004	28250677	06363006	28180677
07401009	27750635	07423008	27860637	07477007	27810637
08462008	27370597	08437005	27450599	08378005	27410599
09412010	27030561	09385007	27060562	09387009	27070562

STATION ALTITUDE 5989.0 FEET MSL
13 AUG. 81 0600 HRS MDT
ASCENSION NO. 009

SIGNIFICANT LEVEL DATA
22500 METER RAWIN

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

TABLE 6

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE FEET MSL	TEMPERATURE AIR DEGREES CENTIGRADE	DEWPOINT	RELATIVE PERCENT
879.9	5989.0	17.5	10.6	92.0
877.6	6182.6	16.6	15.6	95.0
864.1	7300.1	19.5	14.5	73.0
858.0	7866.1	19.0	12.7	67.0
837.6	9681.7	18.8	12.5	67.0
818.6	11275.2	16.7	15.7	94.0
798.6	13024.2	15.3	13.0	98.0
779.8	14791.0	16.0	11.2	73.0
760.8	16579.8	14.6	9.4	71.0
732.4	19134.8	12.0	9.4	84.0
700.0	20376.7	9.0	8.7	98.0
687.8	21654.5	6.0	5.1	96.0
658.6	24629.2	5.1	4.3	92.0
649.2	25614.2	4.5	-1.3	65.0
613.6	29318.5	2.0	-11.3	36.0
596.3	31087.7	-.1	-11.1	43.0
579.2	32948.5	-2.4	-8.1	85.0
553.4	35827.1	-4.3	-10.5	82.0
519.8	39845.3	-6.7	-7.4	95.0
516.0	40334.2	-7.3	-13.3	82.0
509.6	41241.7	-7.7	-14.7	67.0
471.6	46723.3	-10.3	-29.4	19.0
453.1	49742.0	-12.0	-17.4	64.0
430.9	53502.5	-14.1	-23.9	36.0
419.6	55502.2	-15.5	-20.8	55.0
409.0	57447.6	-18.2	-21.7	74.0

STATION ELEVATION 5459.0 FEET MSL
13 AUG. 1 0600 HRS MDT
ASCENSION NO. 349

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LONG DEG

TABLE 7

GEOPOTENTIAL ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE °F	TEMPERATURE °C	DEW POINT DEPRESSION PERCENT	WET MAX. DENSITY G/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
5459.0	879.9	17.5	[illegible].2	92.0	1040.1	[illegible]	13.0	4.1	1.000316
6000.0	873.6	17.4	[illegible].1	92.4	1040.4	[illegible]	13.3	4.0	1.000310
6500.0	867.1	19.5	14.5	73.0	1021.2	[illegible]	42.1	2.2	1.000301
7000.0	860.6	19.0	12.7	67.0	1005.1	[illegible]	108.4	2.0	1.000290
7500.0	853.1	13.5	13.9	70.2	998.0	[illegible]	141.0	3.7	1.000287
8000.0	847.4	17.5	14.7	83.9	974.0	[illegible]	133.5	5.7	1.000292
8500.0	840.0	15.2	15.5	95.9	961.2	[illegible]	109.4	6.8	1.000294
9000.0	834.8	15.6	13.6	87.7	947.0	[illegible]	176.0	8.2	1.000282
9500.0	827.8	15.8	13.9	72.7	931.1	[illegible]	132.7	9.4	1.000267
10000.0	821.9	14.8	9.6	71.2	917.7	[illegible]	167.4	9.4	1.000259
10500.0	814.4	13.6	9.5	76.2	908.0	[illegible]	194.3	8.4	1.000256
11000.0	808.0	12.3	9.4	82.3	892.0	[illegible]	203.0	7.1	1.000254
11500.0	802.7	11.1	8.3	82.3	883.0	[illegible]	218.2	5.7	1.000248
12000.0	797.7	9.9	6.8	81.2	876.0	[illegible]	208.5	4.9	1.000241
12500.0	790.8	8.7	5.4	79.6	867.0	[illegible]	235.4	4.4	1.000234
13000.0	784.1	7.5	4.0	78.0	849.2	[illegible]	234.8	4.5	1.000227
13500.0	777.6	6.4	2.5	76.5	835.0	[illegible]	232.8	4.8	1.000221
14000.0	771.3	5.2	1.3	81.5	821.8	[illegible]	247.9	6.1	1.000216
14500.0	764.1	4.4	-0.0	83.3	809.0	[illegible]	225.8	7.3	1.000206
15000.0	757.1	3.5	-1.0	83.7	797.6	[illegible]	243.7	8.2	1.000199
15500.0	750.3	2.7	-1.8	84.1	786.0	[illegible]	234.3	8.7	1.000191
16000.0	743.7	1.8	-2.6	86.7	775.1	[illegible]	247.1	8.6	1.000185
16500.0	737.2	.4	-3.2	87.3	764.1	[illegible]	233.4	8.6	1.000183
17000.0	730.9	-.7	-4.1	89.9	753.7	[illegible]	237.2	8.2	1.000182
17500.0	724.8	-1.7	-4.8	90.4	743.1	[illegible]	238.8	8.3	1.000181
18000.0	718.9	-2.8	-5.5	94.8	732.6	[illegible]	238.5	9.2	1.000179
18500.0	713.1	-4.0	-6.1	97.5	722.4	[illegible]	243.7	10.8	1.000175
19000.0	707.5	-4.9	-6.9	99.6	712.4	[illegible]	251.7	12.5	1.000173
19500.0	702.0	-5.6	-7.5	99.8	702.8	[illegible]	247.7	13.9	1.000172
20000.0	696.8	-6.3	-7.7	98.3	693.5	[illegible]	244.2	15.2	1.000170
20500.0	691.7	-7.0	-8.2	97.4	684.4	[illegible]	247.0	15.8	1.000165
21000.0	686.7	-7.5	-8.0	99.4	675.6	[illegible]	241.7	16.5	1.000158
21500.0	681.9	-8.2	-8.8	98.4	667.1	[illegible]	240.4	15.6	1.000154
22000.0	677.3	-9.0	-9.0	97.5	658.9	[illegible]	238.5	14.8	1.000149
22500.0	672.9	-9.9	-9.8	94.7	650.9	[illegible]	239.0	14.5	1.000144
23000.0	668.6	-10.8	-9.4	91.3	643.1	[illegible]	253.9	14.3	1.000143
23500.0	664.5	-11.6	-10.1	93.3	635.6	[illegible]	238.4	14.1	1.000143
24000.0	660.5	-12.4	-10.8	94.3	628.3	[illegible]	238.6	13.9	1.000141
24500.0	656.6	-13.3	-11.6	97.2	621.2	[illegible]	242.7	13.5	1.000137
25000.0	652.9	-14.1	-12.3	96.1	614.2	[illegible]	238.8	13.5	1.000133

STATION ALTITUDE 3[illegible].0 FEET SE
13 MIN. -1 96[illegible] DI
ASCENSION NO. 549

UPPER AIR DATA
2[illegible]
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

TABLE 7 CON'T

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	DEW POINT CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GRAMS/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(IN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
23500.[illegible]	42[illegible].4	-15.1	-24.3	44.1	56[illegible]	620.0			1.000152
24000.[illegible]	41[illegible].6	-16.1	-24.9	50.1	56[illegible]	620.4			1.000150
24500.[illegible]	40[illegible].7	-17.3	-25.7	62.7	55[illegible]	620.4			1.000149

STATION ELEVATION 3[illegible].00 FEET MSL
13 AUG. 81 06[illegible] HRS MDT
ASCENSION NO. 349

[illegible] LEVELS
2[illegible]
[illegible]

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

TABLE 8

PRESSURE	GEOPOTENTIAL	TEMPERATURE		RELHUM.	WIND DATA	
MILLIBARS	FEET	AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE	PERCENT	DIRECTION DEGREES(TN)	SPEED KNOTS
[illegible]56.0	4[illegible]2.	1[illegible].0	12.7	[illegible]7.	104.0	1.9
[illegible]00.0	6[illegible]70.	1[illegible].5	15.1	37.	173.0	7.3
750.0	8870.	13.6	9.5	76.	193.9	8.5
70[illegible].0	10[illegible]6.	.1	5.7	[illegible].0.	233.5	4.5
[illegible]50.0	12[illegible]8.	[illegible].5	-1.1	[illegible]0.	225.4	7.1
[illegible]00.0	14[illegible]4.	.4	-11.2	41.	255.4	8.6
[illegible]50.0	16[illegible]5.	-[illegible].5	-10.9	[illegible]5.	232.5	11.7
[illegible]00.0	19[illegible]4.	-[illegible].7	-14.7	[illegible]7.	210.2	10.1
[illegible]50.0	21[illegible].1.	-1[illegible].3	-18.4	[illegible].0.	194.5	15.9
[illegible]00.0	24[illegible]6.	-1[illegible].2	-21.7	74.		

STATION ALTITUDE 3549.0 FEET MSL
13 AUG. 81 0737 HRS MDT
ASCENSION NO. 009

SIGLIFICANT LEVEL DATA
22500/6150
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

TABLE 9

PRESSURE MILLIBARS	GEOPOTENTIAL ALTITUDE FEET	TEMPERATURE AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE	REL. HUM. PERCENT
681.4	9089.0	19.0	10.2	64.0
677.4	9117.5	18.0	10.7	76.0
667.6	9454.4	19.0	14.3	74.0
650.0	9615.3	19.5	13.4	68.0
628.6	9737.3	18.8	13.9	73.0	
799.8	9736.6	16.4	15.6	95.0
786.6	9902.3	17.0	13.3	74.0
761.8	10108.2	15.5	10.5	71.0
733.8	10141.4	12.5	9.5	82.0
700.0	10430.1	10.0	5.0	71.0
669.4	11056.2	7.0	2.7	74.0
660.0	12436.6	6.4	-.8	60.0
606.0	13822.9	1.9	-10.9	38.0
597.0	14119.0	.7	-9.8	45.0
562.6	15276.6	-3.0	-6.1	68.0
551.5	15794.7	-4.6	-5.7	92.0
545.6	16073.3	-5.1	-6.3	77.0
534.4	16603.9	-6.2	-6.9	95.0
508.0	17817.2	-8.1	-14.1	62.0

STATION ALTITUDE 3,989.0 FEET MSL
13 AUG. [illegible] 0737 HRS MDT
ASCENSION NO. [illegible]

UPPER AIR DATA
[illegible]
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

TABLE 10

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
3989.0	[illegible]	19.6	[illegible]	[illegible]	1042.7	[illegible]	15.0	4.1	1.000314
4000.0	881.1	18.9	16.0	83.3	1042.7	[illegible]	15.4	4.0	1.000313
4500.0	[illegible]	19.0	14.2	73.5	1024.7	[illegible]	47.0	2.3	1.000300
5000.0	[illegible]	19.5	13.5	68.2	1005.5	[illegible]	109.1	2.4	1.000293
5500.0	[illegible]	19.0	12.7	71.4	[illegible]	[illegible]	137.5	[illegible]	1.000290
6000.0	820.9	18.2	[illegible]	78.8	974.2	[illegible]	[illegible]	6.0	1.000291
6500.0	[illegible]	17.0	15.3	89.6	[illegible]	[illegible]	[illegible]	7.0	1.000292
7000.0	[illegible]	16.7	13.9	83.1	[illegible]	[illegible]	178.9	7.6	1.000262
7500.0	770.3	16.5	11.7	73.0	[illegible]	[illegible]	196.2	6.9	1.000269
8000.0	[illegible]	15.7	11.5	71.3	910.4	664.2	210.5	6.4	1.000262
8500.0	[illegible]	14.3	[illegible]	75.2	[illegible]	662.6	214.4	5.2	1.000256
9000.0	737.5	12.9	9.6	86.5	892.7	660.9	216.9	4.2	1.000255
9500.0	724.3	11.8	9.3	79.0	880.4	[illegible]	219.9	4.0	1.000247
10000.0	711.3	10.8	6.5	74.7	868.0	658.2	223.4	3.9	1.000239
10500.0	[illegible]	9.8	4.9	71.2	855.7	656.9	[illegible]	4.2	1.000232
11000.0	[illegible]	[illegible]	3.9	72.4	844.0	655.4	[illegible]	4.7	1.000227
11500.0	[illegible]	7.4	3.0	73.6	832.5	[illegible]	[illegible]	5.1	1.000222
12000.0	[illegible]	6.5	-.4	61.4	820.7	652.5	[illegible]	5.6	1.000212
12500.0	[illegible]	5.5	-2.7	55.6	808.7	651.3	239.0	6.3	1.000205
13000.0	[illegible]	4.5	-4.8	59.7	[illegible]	650.0	241.1	6.6	1.000199
13500.0	624.9	3.5	-7.0	45.9	785.1	648.7	241.3	6.3	1.000193
14000.0	[illegible]	2.5	-9.3	41.1	[illegible]	647.4	240.8	6.0	1.000187
14500.0	[illegible]	1.4	[illegible]	41.1	[illegible]	646.0	[illegible]	5.6	[illegible]
15000.0	[illegible]	.0	-9.3	47.1	751.7	644.5	232.4	5.4	1.000163
15500.0	[illegible]	-1.2	[illegible]	56.5	740.7	[illegible]	[illegible]	5.4	1.000161
16000.0	[illegible]	-2.3	-8.2	63.9	[illegible]	641.6	217.1	6.6	[illegible]
16500.0	[illegible]	-3.7	-6.9	78.3	[illegible]	640.3	216.5	6.2	1.000179
17000.0	547.1	-5.0	-7.7	80.9	[illegible]	638.7	218.2	10.1	1.000176
17500.0	[illegible]	-6.9	-7.2	91.3	[illegible]	637.6	219.6	12.2	1.000174
18000.0	[illegible]	-6.6	[illegible]	97.4	[illegible]	[illegible]			1.000170
18500.0	510.2	-7.2	[illegible]	77.6	674.7	[illegible]			[illegible]
19000.0	[illegible]	-7.7	[illegible]	68.1	[illegible]	[illegible]			1.000160

STATION ALTITUDE 3984.0 FEET MSL
13 AUG. 81 0757 HRS MDT
ASCENSION NO. 950

LAUNCH TIME DATA
22500/0000
WHITE WINDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

TABLE 11

PRESSURE GEOPOTENTIAL		TEMPERATURE		RELATIVE	WIND DATA	
MILLIBARS	FEET	AIR DEG FS	DE POINT CENTIGRADE	PERCENT	DIRECTION DEGREES(TN)	SPEED KNOTS
856.0	5012.	19.5	13.4	66.	110.4	2.4
800.0	6722.	15.4	15.0	95.	171.7	7.5
750.0	8328.	14.2	10.0	76.	214.7	5.1
700.0	10029.	10.6	5.0	71.	231.1	4.2
650.0	12057.	5.6	-2.5	56.	236.5	6.2
600.0	14269.	1.1	-10.2	43.	239.1	5.5
550.0	16843.	-4.7	-6.4	66.	217.0	9.6
500.0	19790.	- .1	-14.1	62.		

STATION ALTITUDE [3989].0 FEET MSL
13 AUG. 81 [illegible] HRS MDT
ASCENSION NO. 551

SIGNIFICANT LEVEL DATA
22500, [illegible]
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

TABLE 12

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT DEGREES CENTIGRADE	REL. HUM. PERCENT
881.7	3989.0	21.5	16.5	73.0
870.6	4349.1	18.8	13.6	72.0
850.0	5026.0	18.8	12.5	67.0
842.2	5286.7	18.6	14.7	78.0
814.2	6241.6	17.7	15.1	85.0
804.8	6568.8	17.5	12.6	73.0
786.0	7233.0	16.5	10.5	69.0
739.0	8949.8	12.5	6.4	76.0
721.0	9529.7	11.3	5.2	66.0
700.0	10439.4	9.1	3.5	68.0
676.4	11371.5	7.1	1.6	68.0
632.0	13171.6	3.6	-0.9	46.0
606.6	14287.9	1.5	-10.5	41.0
587.1	15149.7	-.9	-7.9	59.0
581.2	15414.9	-1.2	-11.0	47.0
564.6	16172.7	-2.8	-12.5	47.0
539.0	17340.5	-4.0	-6.0	77.0
500.0	19411.1	-8.5	-15.7	66.0

STATION ALTITUDE 3989.00 FEET MSL
13 AUG. 81 0900 HRS MDT
ASCENSION NO. 001

UPPER AIR DATA
25000 FEET MSL
WHITE SANDS

GEODETIC COORDINATES
32.460043 LAT DEG
106.37033 LON DEG

TABLE 13

GEOPOTENTIAL ALTITUDE FEET MSL	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
3989.0	861.7	21.5	15.5	73.0	1031.1	671.4	355.0	4.1	1.000312
4000.0	861.1	21.4	15.4	73.0	1034.0	671.3	355.1	4.0	1.000312
4500.0	836.0	13.8	12.4	71.9	1026.3	667.9	2.4	1.9	1.000297
5000.0	811.8	13.8	12.6	87.2	1000.0	667.8	113.6	.5	1.000290
5500.0	788.9	10.4	9.8	79.6	991.1	663.7	133.4	2.5	1.000296
6000.0	821.2	17.9	15.0	83.2	973.1	667.3	109.0	4.4	1.000294
6500.0	808.8	17.5	13.2	75.3	956.0	666.6	170.6	6.1	1.000282
7000.0	794.5	10.9	11.4	76.4	[illegible]	665.0	160.3	6.7	1.000272
7500.0	777.5	15.9	1.4	73.1	933.0	664.4	134.4	7.0	1.000265
8000.0	764.6	14.7	9.7	72.1	919.8	663.8	130.5	6.1	1.000260
8500.0	752.9	13.5	9.0	74.2	908.3	663.3	230.5	5.1	1.000255
9000.0	737.7	12.4	8.2	75.3	894.9	662.2	140.5	4.9	1.000250
9500.0	724.4	11.5	5.8	67.9	882.2	661.9	135.6	4.7	1.000240
10000.0	711.3	10.3	4.4	66.9	870.0	661.4	192.4	5.1	1.000234
10500.0	699.4	9.0	3.4	68.0	858.0	660.7	139.7	5.4	1.000228
11000.0	686.7	7.9	2.4	68.6	846.0	659.4	198.1	5.6	1.000223
11500.0	674.2	6.9	1.0	66.9	834.4	658.1	200.6	5.8	1.000218
12000.0	662.8	5.9	-1.2	68.3	823.3	657.8	220.6	5.9	1.000210
12500.0	649.6	4.9	-3.5	58.2	810.6	656.5	234.5	6.1	1.000204
13000.0	636.7	3.9	-6.0	48.1	798.6	655.2	230.6	6.1	1.000197
13500.0	624.8	3.0	-7.9	44.5	786.7	654.0	249.5	5.6	1.000192
14000.0	613.2	2.0	-9.4	42.3	774.8	652.9	230.5	5.1	1.000188
14500.0	601.7	.9	-9.5	45.4	763.3	651.5	214.6	5.4	1.000185
15000.0	590.4	-.5	-8.2	55.9	752.0	650.0	207.5	6.3	1.000185
15500.0	579.3	-1.4	-11.2	47.0	741.3	648.8	200.9	7.2	1.000178
16000.0	568.3	-2.4	-12.2	47.0	730.2	647.5	213.4	7.6	1.000175
16500.0	557.5	-3.3	-10.9	55.4	719.5	646.3	241.1	8.1	1.000174
17000.0	546.9	-4.1	-9.0	68.5	709.1	645.7	243.7	8.2	1.000174
17500.0	536.5	-4.9	-8.5	76.1	699.1	644.8	245.6	8.3	1.000172
18000.0	526.1	-5.9	-9.1	73.3	688.4	643.5			1.000168
18500.0	516.9	-6.9	-11.3	70.5	679.0	642.3			1.000164
19000.0	508.1	-7.9	-12.8	67.7	669.5	641.0			1.000160

STATION ALTITUDE 3930. 0 FEET MSL
15 AUG. 81 0900 HRS MDT
ASCENSION RATE 1.0 M/S

RADIOSONDE NO. 2
WILEY 1691

GEODETIC COORDINATES
32.40093 LAT DEG
106.37033 LON DEG

TABLE 14

PRESSURE MILLIBARS	GEOPOTENTIAL HEIGHT FEET	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	RELATIVE HUMIDITY PERCENT	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS
[illegible]	5[illegible].	13.8	12.5	97.	121.0	.6
700.0	9732.	17.2	12.2	72.	177.9	4.6
750.0	8533.	14.5	9.0	74.	200.9	5.0
700.0	10629.	9.1	3.5	83.	190.1	5.4
650.0	12031.	5.0	-3.5	55.	232.4	6.1
600.0	14560.	.7	-9.3	47.	211.0	5.5
550.0	15[illegible].	-3.3	-9.3	64.	223.1	6.2
500.0	19[illegible].	-8.5	-13.7	63.